WHAT IS CLAIMED IS:

1. A formation fluid sample bottle comprising:

a cylindrical tube with an enclosed top end and an open bottom end;

a sample piston slidingly inserted into said cylindrical tube to form a sample chamber inside said cylindrical tube between said enclosed top end and said sample piston;

a charging piston slidingly inserted into said cylindrical tube between said sample piston and said open bottom end to form a pressurized gas chamber inside said cylindrical tube between said sample piston and said charging piston; and

an end cap fixed to said open bottom end;

wherein:

said charging piston includes a valve to allow the introduction of a pressurizing gas into said pressurized gas chamber.

2. The formation fluid sample bottle of claim 1, wherein said enclosed top end includes an opening with a valve to allow a formation fluid sample to be introduced into said sample chamber.

3. The formation fluid sample bottle of claim 2, wherein said end cap includes an open port.

4. The formation fluid sample bottle of claim 3, wherein said charging piston has an outer circumference and additionally comprises:

at least one O-ring located at said outer circumference;

an axial bore extending through said charging piston; and

a check valve positioned in said axial bore.

5. The formation fluid sample bottle of claim 4, wherein said charging piston additionally comprises a plunger inserted into said axial bore.

6. The formation fluid sample bottle of claim 5, wherein said plunger additionally comprises:

a distal end and a proximal end;

an axial bore;

a narrowed diameter section at said distal end; and

a release plug inserted into said axial bore at said proximal end.

7. The formation fluid sample bottle of claim 6, wherein:

said plunger additionally has an outer circumference and further comprises:

at least one O-ring located at said outer circumference; and

said outer circumference of said plunger is provided with threads for attachment to said axial bore of said charging piston.

8. The formation fluid sample bottle of claim 7, additionally comprising pressurized nitrogen gas inserted into said pressurized gas chamber.

9. The formation fluid sample bottle of claim 8, wherein said charging piston is formed from material selected from the group consisting of alloy steel, stainless steel and corrosion resistant alloy metal.

10. A single phase formation evaluation tool comprising:

at least one formation fluid sample bottle with an enclosed top end, an open bottom end and an axial bore extending through said formation fluid sample bottle;

a sample piston slidingly inserted into said axial bore of said formation fluid sample bottle to form a collection chamber within said axial bore, between said enclosed top end and said sample piston;

a charging piston slidingly inserted into said axial bore of said formation fluid sample bottle below said sample piston, to form a pressurized gas chamber within said axial bore, between said sample piston and said charging piston; and

an end cap fixed to said open bottom end of said formation fluid sample bottle.

11. The single phase formation evaluation tool of claim 10, wherein said charging piston has an outer circumference and additionally comprises:

at least one O-ring located at said circumference;

an axial bore extending through said charging piston; and

a check valve positioned in said axial bore.

12. The single phase formation evaluation tool of claim 11, wherein said charging piston additionally comprises a plunger inserted into said axial bore.

13. The single phase formation evaluation tool of claim 12, wherein said plunger additionally comprises:

a distal end and a proximal end;

an axial bore;

a narrowed diameter section at said distal end; and

a release plug inserted into said axial bore at said proximal end.

14. The single phase formation evaluation tool of claim 13, wherein:

said plunger additionally has an outer circumference and further comprises:

at least one O-ring located at said outer circumference; and

said outer circumference of said plunger is provided with threads for attachment to said axial bore of said piston.

15. The single phase formation evaluation tool of claim 14, additionally comprising pressurized nitrogen gas inserted into said pressurized gas chamber.

16. The single phase formation evaluation tool of claim 15, wherein said charging piston is formed from material selected from the group consisting of alloy steel, stainless steel and corrosion resistant alloy metal.

17. The single phase formation evaluation tool of claim 10, additionally comprising:

a case adaptor positioned at said open bottom end of said formation fluid sample bottle; and

wherein said end cap is fixed to said case adapter.

18. The single phase formation evaluation tool of claim 17, additionally comprising anti-rotation lugs mounted on said case adaptor to engage said charging piston.

19. The single phase formation evaluation tool of claim 10, wherein said charging piston includes a check valve to introduce pressurized gas into said pressurized gas chamber.

20. A pressurizing piston for use in collecting formation fluid samples downhole and maintaining the pressure of the sample above the bubble point of the sample, comprising:

a cylindrical main body with a distal end, a proximal end and a threaded axial bore;

a check valve inserted into said axial bore at said distal end of said main body;

a plunger with a narrowed diameter distal section, an open proximal end, an axial bore, an outer circumference with at least one O-ring located at said outer circumference, and threads located on said outer circumference engaged to said cylindrical main body threaded axial bore; and

a release plug inserted into said plunger open proximal end to seal off said plunger axial bore.

21. A method for downhole fluid sample collection comprising the steps of:

providing a tube with a first end and a second end, and a first piston and a second piston located within said tube;

inserting pressurized gas in the space between said first and second piston;

lowering the tube downhole;

collecting a formation fluid sample in the space between the first end of the tube and said first piston;

raising said tube with said formation fluid sample.

22. A method for extracting a single phase fluid sample from a wellbore formation and maintaining the sample in a single phase, comprising the steps of:

forcing a sample piston and a charging piston together within a formation fluid sample bottle to purge any existing gas from a pressurized gas chamber;

attaching a pressurized gas source to said charging piston;

forcing pressurized gas through said charging piston into said pressurized gas chamber;

removing said pressurized gas source from said charging piston.

inserting said formation fluid sample bottle into a formation evaluation tool;

lowering said formation evaluation tool into a wellbore to a desired formation depth;

allowing hydrostatic pressure from said wellbore to force said charging piston toward said sample piston to further pressurize said pressurized gas;

pumping formation fluid into said single phase collection apparatus;

raising said formation evaluation tool; and

removing said single phase collection apparatus from said formation evaluation tool.